

Citation

Viscusi, W. (1986). The impact of Occupational Safety and Health regulations, 1973-1983. *RAND Journal of Economics*, 17(4), 567–580.

Highlights

- The study's objective was to examine changes in the effects of OSHA inspections and penalties on injury rates in manufacturing industries between 1973 and 1983. Although OSHA no longer operates as it did during this period, this study provides historical context for changes that were later made to the program.
- The study used a regression model to examine the changes in injury rates in manufacturing industries associated with higher and lower rates of OSHA inspections and penalties during the prior two years.
- The study found that the evidence of the effectiveness of OSHA inspections and penalties in reducing injuries was mixed, and the effects of OSHA enforcement activities on most outcomes varied over time.
- The quality of the causal evidence presented in this study is low. This means we are not confident that the differences in injuries within industries are attributable to the inspections or penalties.

OSHA Enforcement Activities and Outcomes

The study examined changes in the effects of OSHA inspections and penalties on injury rates in manufacturing industries between 1973 and 1983. It analyzed the effects of (1) the number of OSHA inspections per production worker in the current and previous year and (2) the amount of assessed penalties per production worker in the current and previous year. The outcomes examined were injuries per employee, lost work-day injuries per employee, and lost work days per employee. Although OSHA no longer operates as it did during the period this analysis considers, this study provides historical context for changes that were later made to the program.

Features of the Study

The study used a regression model with industry fixed effects to examine the changes in injury rates in manufacturing industries associated with higher and lower rates of OSHA inspections and penalties during the prior two years. The model included controls for the prior injury rate, fraction of production workers, fraction of female workers, employment, hours, overtime hours, and year.

The author examined 22 manufacturing industries between 1973 and 1983. The study did not specify the sources of data, but they appear to be the same as those in an earlier paper (Viscusi 1979).¹ These data sources included injury data from the Department of Labor Occupational Injuries and Illnesses; unpublished OSHA data on inspections and penalties; and data on industry employment and characteristics from the Department of Labor, Employment, and Earnings and the Census Bureau.

Findings

- The study found that the evidence on the effectiveness of OSHA inspections and penalties in reducing injuries was mixed, and the effects of OSHA enforcement activities on most outcomes examined varied over time.
- Between 1973 and 1983, having an OSHA inspection in the previous year was associated with statistically significant reductions in injuries per employee, lost work-day injuries per employee, and lost work days per employee. During the same time period, having an OSHA inspection in the current year was associated with a statistically significant increase in injuries per employee and positive but not statistically significant increases in lost-workday injuries per employee and lost work days per employee.
- Between 1973 and 1983, being assessed a penalty by OSHA in the current year or the previous year was not statistically significantly related to any of the injury outcomes.

Considerations for Interpreting the Findings

In this study, the estimated changes within industries in injuries may reflect changes in the underlying differences in safety levels or other factors over time, rather than the impact of inspections or penalties. Years when industries have higher rates of inspections are likely less safe, on average, than those with lower rates of inspections, because some inspections are triggered by an employee complaint of a workplace hazard or by OSHA's targeting programs. Therefore, periods in which an industry was more frequently inspected are also likely to be periods where that industry is characterized by more underlying workplace hazards. This could account for the seemingly counterintuitive finding that having an OSHA inspection was associated with an increase in injury rates.

Causal Evidence Rating

The quality of the causal evidence presented in this study is low. This means we are not confident that the differences in injuries within industries when they had higher rates of OSHA inspections and penalties in the preceding two years relative to when they had lower rates are attributable solely to the inspections or penalties. To provide more convincing causal evidence that meets CLEAR criteria, the study could have demonstrated that conditions within firms in the same industry were similar in years characterized by higher or lower inspection and penalty rates. This would give us confidence that the only differences between years when an industry experienced higher and lower inspection and penalty rates were caused by OSHA enforcement activities.

¹ Viscusi, W. (1979). The impact of Occupational Safety and Health regulation. *The Bell Journal of Economics*, 1(1), 117–140. The CLEAR summary of this study is available at <http://clear.dol.gov>.